

IN THE CLAIM:

1. (Previously Presented) An axle suspension for a rigid vehicle axle, the axle suspension comprising:

a four-point connecting rod arranged above the vehicle axle;

two vehicle axle joints connecting two points of said four-point connecting rod to said vehicle axle in an articulated manner;

two vehicle body joints connecting two points of said four-point connecting rod to a vehicle body in an articulated manner, said two vehicle axle joints being located at spaced locations from one another in a transverse direction of the vehicle and said two vehicle body joints being located at spaced locations from one another in a transverse direction of the vehicle;

an first axle strut extending in a longitudinal direction of the vehicle arranged on a first side of the vehicle for guiding the axle, said first axle strut connecting said vehicle axle to said vehicle body in a vertically movable manner;

an second axle strut extending in a longitudinal direction of the vehicle arranged on a second side of the vehicle for guiding the axle, said second axle strut connecting said vehicle axle to said vehicle body in a vertically movable manner;

a first spring assembly unit arranged between the vehicle axle and the vehicle body for spring suspension;

a second spring assembly unit arranged between the vehicle axle and the vehicle body for spring suspension;

a first molecular joint connecting said first axle strut to said vehicle axle at an articulation point, said first axle strut having a free end extending beyond said articulation point, said first spring assembly being positioned at said first axle strut free end;

25 a second molecular joint connecting said second axle strut to said vehicle axle at an articulation point, said first second axle strut having a free end extending beyond said articulation point, said second spring assembly being positioned at said second axle strut free end.

2. (Previously Presented) An axle suspension in accordance with claim 1, wherein said first axle strut free end has a first mount for said spring assembly unit and said second axle strut free end has a second mount for said second spring assembly unit.

3. (Previously Presented) An axle suspension in accordance with claim 2, wherein said first mount includes a joint and said second mount includes a joint.

4. (Previously Presented) An axle suspension in accordance with claim 3, wherein the joints are ball-and-socket joints.

5. (Previously Presented) An axle suspension in accordance with claim 1, further comprising a first shock absorber connected between said first axle strut and the vehicle body and a second shock absorber connected between said second axle strut and the vehicle body,

5 said first axle strut having a first mount for said first shock absorber and said second axle strut having a second mount for said second shock absorber.

6. (Previously Presented) An axle suspension in accordance with claim 1, further comprising:

a third molecular joint connecting said first axle strut to said vehicle body; and  
a forth molecular joint connecting said second axle strut to said vehicle body.

5 7. (Previously Presented) An axle suspension in accordance with claim 6, wherein said third molecular joint connecting said first axle strut to said vehicle body has a stiffer joint characteristic than said first molecular joint connecting said first axle strut to said vehicle axle and said forth molecular joint connecting said second axle strut to said vehicle body has a stiffer joint characteristic than said second molecular joint connecting said second axle strut to said vehicle axle.

8. (Previously Presented) An axle suspension in accordance with claim 5, wherein said spring assembly unit is arranged in front of said vehicle axle and another spring assembly unit is arranged behind said vehicle axle.

9. (Previously Presented) An axle suspension in accordance with claim 1, wherein said spring assembly unit is arranged in front of said vehicle axle and another spring assembly unit

is arranged behind said vehicle axle.

10. (Previously Presented) An axle suspension in accordance with claim 5, wherein said first mount includes a joint and said second mount includes a joint.

11. (Previously Presented) An axle suspension for a rigid vehicle axle of air-suspension utility vehicles, the axle suspension comprising:

a four-point twistable connecting member arranged above the vehicle axle;

two vehicle axle joints connecting two points of said four-point connecting member to  
5 said vehicle axle in an articulated manner;

two vehicle body joints connecting two points of said four-point connecting member to a vehicle body in an articulated manner, said two vehicle axle joints being located at spaced locations from one another in a transverse direction of the vehicle and said two vehicle body joints being located at spaced locations from one another in a transverse direction of the  
10 vehicle;

an first axle strut extending in a longitudinal direction of the vehicle arranged on a first side of the vehicle with a direct first strut to axle connection point for guiding the axle, said first axle strut including a first strut to vehicle chassis connection point connecting said vehicle axle to said vehicle body in a vertically movable manner;

15 an second axle strut extending in a longitudinal direction of the vehicle arranged on a second side of the vehicle with a direct second strut to axle connection point for guiding the

axle, said second axle strut including a second strut to vehicle chassis connection point connecting said vehicle axle to said vehicle body in a vertically movable manner;

20 a spring assembly unit arranged between the vehicle axle and the vehicle body for spring suspension, said first axle strut having a first mount for said spring assembly unit;

another spring assembly unit arranged between the vehicle axle and the vehicle body for spring suspension, said second axle strut having second mount for said another spring assembly unit;

25 a further spring assembly unit arranged between the vehicle axle and the vehicle body for spring suspension;

a first molecular joint providing said first strut to axle connection point, connecting said first axle strut to said vehicle axle; and

a second molecular joint providing said second strut to axle connection point, connecting said second axle strut to said vehicle axle.

12. (Canceled)

13. (Previously Presented) An axle suspension in accordance with claim ~~12~~ 11, wherein said first mount includes a joint and said second mount includes a joint.

14. (Previously Presented) An axle suspension in accordance with claim 13, wherein the joints are ball-and-socket joints.

15. (Previously Presented) An axle suspension in accordance with claim 11, further comprising a first shock absorber connected between said first axle strut and the vehicle body and a second shock absorber connected between said second axle strut and the vehicle body, said first axle strut having a first mount for said first shock absorber and said second axle strut having a second mount for said second shock absorber.

16. (Previously Presented) An axle suspension in accordance with claim 15, wherein said first mount includes a ball-and-socket joint and said second mount includes a ball-and-socket joint.

17. (Previously Presented) An axle suspension in accordance with claim 11, further comprising:

a third molecular joint connecting said first axle strut to said vehicle body; and  
a forth molecular joint connecting said second axle strut to said vehicle body.

18. (Previously Presented) An axle suspension in accordance with claim 17, wherein said third molecular joint connecting said first axle strut to said vehicle body has a stiffer joint characteristic than said first molecular joint connecting said first axle strut to said vehicle axle and said forth molecular joint connecting said second axle strut to said vehicle body has a stiffer joint characteristic than said second molecular joint connecting said second axle strut to said vehicle axle.

19. (Previously Presented) An axle suspension in accordance with claim 11, wherein said spring assembly unit is arranged in front of said vehicle axle and said another spring assembly is arranged behind the said vehicle axle.

20. (Previously Presented) An axle suspension in accordance with claim 15, wherein said spring assembly unit is arranged in front of said vehicle axle and said another spring assembly is arranged behind the said vehicle axle.

21. (Previously Presented) An axle suspension for a rigid vehicle axle, the axle suspension comprising:

a four-point connecting rod arranged above the vehicle axle;

two vehicle axle joints connecting two points of said four-point connecting rod to said vehicle axle in an articulated manner;

two vehicle body joints connecting two points of said four-point connecting rod to a vehicle body in an articulated manner, said two vehicle axle joints being located at spaced locations from one another in a transverse direction of the vehicle and said two vehicle body joints being located at spaced locations from one another in a transverse direction of the vehicle;

an first axle strut extending in a longitudinal direction of the vehicle arranged on a first side of the vehicle for guiding the axle, said first axle strut connecting said vehicle axle to said vehicle body via a joint at a first front articulation point for movement of said first axle strut

relative to said vehicle body vertically;

15 an second axle strut extending in a longitudinal direction of the vehicle arranged on a second side of the vehicle for guiding the axle, said second axle strut connecting said vehicle axle to said vehicle body via a joint at a second front articulation point for movement of said second axle strut relative to said vehicle body vertically;

20 a spring assembly unit arranged between the vehicle axle and the vehicle body for spring suspension;

a first molecular joint connecting said first axle strut to said vehicle axle at an articulation point, said first axle strut having a direction toward a middle of the vehicle in an extent of said first axle strut from said front articulation point toward a rear of the vehicle; and

25 a second molecular joint connecting said second axle strut to said vehicle axle at an articulation point, said second axle strut having a direction toward a middle of the vehicle in an extent of said second axle strut from said front articulation point toward a rear of the vehicle.

22. (Previously Presented) An axle suspension for a rigid vehicle axle of air-suspension utility vehicles, the axle suspension comprising:

a four-point twistable connecting member arranged above the vehicle axle;

5 two vehicle axle joints connecting two points of said four-point connecting member to said vehicle axle in an articulated manner;

two vehicle body joints connecting two points of said four-point connecting member

to a vehicle body chassis in an articulated manner, said two vehicle axle joints being located at spaced locations from one another in a transverse direction of the vehicle and said two vehicle body joints being located at spaced locations from one another in a transverse direction of the vehicle;

an first axle strut extending in a longitudinal direction of the vehicle arranged on a first side of the vehicle with a direct first strut to axle connection point for guiding the axle, said first axle strut including a first strut to vehicle chassis connection point connecting said vehicle axle to said vehicle body chassis in a vertically movable manner;

an second axle strut extending in a longitudinal direction of the vehicle arranged on a second side of the vehicle with a direct second strut to axle connection for guiding the axle, said second axle strut including a second strut to vehicle chassis connection point connecting said vehicle axle to said vehicle body chassis in a vertically movable manner;

a spring assembly unit arranged between the first axle strut and the vehicle body and behind the axle, with respect to a direction of travel of the vehicle, for spring suspension;

another spring assembly unit arranged between the second axle strut and the vehicle body and behind the axle, with respect to a direction of travel of the vehicle, for spring suspension;

a first molecular joint providing said first strut to axle connection point, connecting said first axle strut to said vehicle axle; and

a second molecular joint providing said second strut to axle connection point, connecting said second axle strut to said vehicle axle.

23. (Previously Presented) An axle suspension for a rigid vehicle axle of air suspension utility vehicles, the axle suspension comprising:

30 a four-point twistable connecting member arranged above the vehicle axle;

two vehicle axle joints connecting two points of said four-point connecting member to said vehicle axle in an articulated manner;

35 two vehicle body joints connecting two points of said four-point connecting member to a vehicle body in an articulated manner, said two vehicle axle joints being located at spaced locations from one another in a transverse direction of the vehicle and said two vehicle body joints being located at spaced locations from one another in a transverse direction of the vehicle;

40 an first axle strut extending in a longitudinal direction of the vehicle arranged on a first side of the vehicle for guiding the axle, said first axle strut connecting said vehicle axle to said vehicle body in a vertically movable manner;

an second axle strut extending in a longitudinal direction of the vehicle arranged on a second side of the vehicle for guiding the axle, said second axle strut connecting said vehicle axle to said vehicle body in a vertically movable manner;

45 a forward spring assembly unit arranged between the vehicle first axle strut and the vehicle body and in front of the axle, with respect to a direction of travel of the vehicle, for spring suspension;

another forward spring assembly unit arranged between the vehicle first axle strut and the vehicle body and behind the axle, with respect to a direction of travel of the vehicle, for

spring suspension;

50 a rear spring assembly unit arranged between the vehicle second axle strut and the vehicle body and rearwardly of the axle, with respect to a direction of travel of the vehicle, for spring suspension;

another rear spring assembly unit arranged between the vehicle axle and the vehicle body and rearwardly of the axle, with respect to a direction of travel of the vehicle, for spring  
55 suspension;

a first molecular joint connecting said first axle strut to said vehicle axle; and  
a second molecular joint connecting said second axle strut to said vehicle axle.

24. (Previously Presented) An axle suspension for a rigid vehicle axle of air-suspension utility vehicles, the axle suspension comprising:

a four-point twistable connecting member arranged above the vehicle axle;

two vehicle axle joints connecting two points of said four-point connecting member to  
5 said vehicle axle in an articulated manner;

two vehicle body joints connecting two points of said four-point connecting member to a vehicle body in an articulated manner, said two vehicle axle joints being located at spaced locations from one another in a transverse direction of the vehicle and said two vehicle body joints being located at spaced locations from one another in a transverse direction of the  
10 vehicle;

an first axle strut extending in a longitudinal direction of the vehicle arranged on a first

side of the vehicle for guiding the axle, said first axle strut connecting said vehicle axle to said vehicle body in a vertically movable manner;

an second axle strut extending in a longitudinal direction of the vehicle arranged on a second side of the vehicle for guiding the axle, said second axle strut connecting said vehicle axle to said vehicle body in a vertically movable manner;

a spring assembly unit arranged between the first axle strut and the vehicle body for spring suspension, said first axle strut having a first mount for said spring assembly unit;

another spring assembly unit arranged between the second axle strut and the vehicle body for spring suspension, said second axle strut having a second mount for said another spring assembly unit;

a first shock absorber connected between said first axle strut and said vehicle body, said first axle strut having a first shock absorber mount for said first shock absorber, said first mount for said spring assembly unit being spaced from said first shock absorber mount along said first axle strut;

a second shock absorber connected between said second axle strut and the vehicle body, said second axle strut having a second shock absorber mount for said second shock absorber, said second mount for said spring assembly unit being spaced from said second shock absorber mount along said second axle strut;

a first molecular joint connecting said first axle strut to said vehicle axle; and

a second molecular joint connecting said second axle strut to said vehicle axle.

25. (Previously Presented) An axle suspension for a rigid vehicle axle, the axle suspension comprising:

a four-point connecting rod arranged above the vehicle axle;

two vehicle axle joints connecting two points of said four-point connecting rod to said vehicle axle in an articulated manner;

two vehicle body joints connecting two points of said four-point connecting rod to a vehicle body in an articulated manner, said two vehicle axle joints being located at spaced locations from one another in a transverse direction of the vehicle and said two vehicle body joints being located at spaced locations from one another in a transverse direction of the vehicle;

an first axle strut extending in a longitudinal direction of the vehicle arranged on a first side of the vehicle for guiding the axle, said first axle strut connecting said vehicle axle to said vehicle body in a vertically movable manner;

an second axle strut extending in a longitudinal direction of the vehicle arranged on a second side of the vehicle for guiding the axle, said second axle strut connecting said vehicle axle to said vehicle body in a vertically movable manner;

a spring assembly unit arranged between the vehicle axle and the vehicle body for spring suspension;

a first molecular joint connecting said first axle strut to said vehicle axle;

a second molecular joint connecting said second axle strut to said vehicle axle;

a third molecular joint connecting said first axle strut to said vehicle body; and

25 a forth molecular joint connecting said second axle strut to said vehicle body, wherein  
said third molecular joint connecting said first axle strut to said vehicle body has a stiffer joint  
characteristic than said first molecular joint connecting said first axle strut to said vehicle axle  
and said forth molecular joint connecting said second axle strut to said vehicle body has a  
stiffer joint characteristic than said second molecular joint connecting said second axle strut  
to said vehicle axle.